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EXPLORING CONTEMPORARY SCULPTURE IN RELIEF

by

ROY ALVIN EKSTROM

B. A. Montana State University, 1959

Presented in partial fulfillment of the requirements  
for the degree of

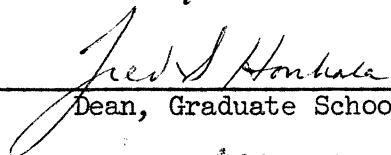
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## CHAPTER I

### INTRODUCTION

Sculpture may be defined as an art of expression of personal experience as represented in volume or mass; volume which rises against gravity with an ensurging sense of power giving the work of art a very direct quality. As a major art, sculpture is usually thought of as an individual creation with sufficient character to emphasize the area around it. Sculpture is classified as (1) sculpture in the round, (2) relief sculpture, and (3) kinetic or moving sculpture, such as the mobile constructions of Alexander Calder.

Currently, sculpture is being revitalized to attain a harmonious quality with architecture. This reintegration is certainly not a new concept, but stems from the unified status of the arts which was so apparent during the Middle Ages. Damaz states that this era was the last great period of architectural sculpture, with sculpture and architecture gradually separating since Renaissance times into distant areas, culminating with the architectural revolution at the beginning of the Twentieth Century.<sup>1</sup> Today, with architecture becoming freer and more plastic, and with some forms of sculpture taking on more architectural elements, a reunification is probably more desirous.

This thesis experimentally approaches the interrelationship between the arts, featuring a non-representational limitation of subject matter as a prime objective. The project work itself comprises

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<sup>1</sup>Paul Damaz, Art in European Architecture (New York: Reinhold Publishing Company, 1956), p. 59.

the major portion of the thesis. This paper serves mainly as a statement of objectives, as a record of the hypothetical problems, and as a conclusive justification of the thesis.

## CHAPTER II

### FORMULATION OF THE PROBLEM

Sculpture in relief as an architectonic device. Architectonic may be defined as "pertaining to an architect or architecture" or of "resembling architectural work, as in structure or texture."<sup>2</sup> To attain significance of statement, sculpture must harmonize with the other architectural elements of a structure. To justify existence, it must merit respect while emerging as a focal point of emphasis. In defining architectural sculpture, Damaz relates that it "...may make inert materials vibrate and create movement, (may) break up great architectural masses, overcome the monotony of large surfaces, and extend the esthetic impact created by the mass of the building."<sup>3</sup> This architectonic synthesis between sculpture and structure poses a critical problem to the visual appearance of a building.

Sculpture in relief was selected as a means of expression for this problem purely as a matter of choice. Baldinger defines sculpture in relief as "projecting almost as much as would the object represented or up to about half as much."<sup>4</sup> Usually, this is referred to as high or low relief, and sometimes by using the French term "haut" (which is pronounced "oh") for high, or the term "bas" (pronounced "bah") for low.

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<sup>2</sup>Webster's New Collegiate Dictionary (Springfield, Mass.: G. and C. Merriam Company, 1956).

<sup>3</sup>Damaz, op. cit.

<sup>4</sup>Wallace S. Baldinger, The Visual Arts (New York: Holt, Rinehart and Winston, Inc., 1960), p. 119.

Examples of Architectonic Sculpture, Past and Present. Sculpture in relief is not a new innovation. It may date back as early as 2500 B. C. in Mesopotamia alone. However, this thesis is not intended to be a survey of art history. A few examples are referred to for the convenience of the reader.

As an architectonic device, relief sculpture was utilized distinctly by the Babylonians as early as 605-562 B. C. with their famous "Lion Wall."<sup>5</sup> Gothic architects utilized relief sculpture to a high degree of excellence, as shown in Damaz by the photographs of Notre Dame de Chartres and St. Trophime in Arles, both Twelfth Century examples.<sup>6</sup>

Today, synthesization of art and architecture is well illustrated by the fine exterior mural facades of University International, Mexico, D.F., and recently by the 240 foot cast concrete relief of the Hartford Jewish Community Center, West Hartford, Connecticut. The latter, a collaboration between artists Harris and Ros Barron and architects Walter Gropius and Norman Fletcher, provides conclusive evidence that harmony between the arts is occurring in the United States.

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<sup>5</sup>Glenn C. Nelson, Ceramic Reference Manual (Minneapolis, Minn.: Burgess Publishing Company, 1957), p. 16.

<sup>6</sup>Damaz, op. cit., pp. 25,26.

## CHAPTER III

### THE PROBLEM

Exploration of esthetic problems. Selecting a suitable medium to explore creative form constituted an immediate challenge. The possibility of either cast concrete or ceramic clay emerged. Sculptural procedure follows one of two standard methods which are (1) subtractive, or "glyptic,"<sup>7</sup> featuring the cutting away of material, or (2) additive, sometimes called "plastic,"<sup>8</sup> employing building up of a material until the work is completed. Relief sculpture may utilize characteristics of both glyptic and plastic techniques. Clay was selected, by personal choice, because of its plastic flexibility and freedom, its spontaneity, its permanence after firing and its affinity for glaze coloration.

Creative approaches of form emerged as a major concern with the beginning problem. Placing non-representational limitations necessitated a diversified exploration of different ideas. Preliminary sketches were ruled out since they would tend to inhibit spontaneity and exploration.

#### Working Problems

Projects 1 and 2 consisted of working for original ideas which might promote a design direction. By starting on a small scale and gradually increasing the size of successive projects, it was felt that thorough evolution of experiences would result. Each project was

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<sup>7</sup>From the Greek "glyptikos" meaning "carved."

<sup>8</sup>From the Greek "plastikos" meaning "fit for molding."



FIGURE 1

PROJECT 1: PRELIMINARY FORM  
AND TEXTURE STUDY



FIGURE 2

PROJECT 2: PRELIMINARY FORM  
AND TEXTURE STUDY,  
EXPANDED

planned in anticipation of esthetic and technical involvements. Basically the same clay was used throughout all of the projects, although different components were introduced and these will be mentioned as they occurred. These factors, together with glazes, firing results and other data were maintained in record form. The clay used for sculpture consisted of the following:

- 5 parts Kentucky ball clay
- 5 parts Denver fire clay
- 2 parts local "airport" clay
- 2 parts screened sand

Vertical tile variations, exploring curved form and texture, dominated the preliminary approaches. Subdued neutral coloring employing a simple white engobe<sup>9</sup> and a clear lead glaze were applied. Both projects were fired simultaneously to a temperature of Cone 5 (2201 degrees Fahrenheit), using a one-fire technique.<sup>10</sup>

Results of the firing coupled with form-exploration and textural relief possibilities provided much design direction in setting up the next project.

Project 3 utilized many of the form variations of the previous experiments. Structural composition was changed to a "squared-off" horizontal approach. Variation of construction was introduced in the form of hollow, multi-sectional tile arranged in mosaic fashion, which led to a new esthetic approach. The clay formula was altered to include chopped straw as a strengthening feature during construction. Additional colors were added in the form of blue-green engobe sections and "dribble" variations, which seemed to increase the esthetic enhancement.

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<sup>9</sup>An engobe is a clay solution with coloring oxide added to it.

<sup>10</sup>Although most ceramic firing consists of a preliminary "bisque" firing plus glaze firing, this thesis explored the "one-fire" approach.





FIGURE 3

PROJECT 3: HORIZONTAL PROPORTION. HOLLOW TILE DIRECTION

Problem 3 contributed much valuable information in setting up the ensuing experiments. Horizontal proportion resulted in a new set of compositional problems which, when combined with the hollow-tile construction, indicated a more powerful statement. The lead glaze effected undesirable qualities of blistering (possibly caused by the presence of sulphur in the natural-gas kiln) and resultant discoloration because of this blistering. These unpredictable qualities provoked a desire to experiment with other glaze coverings.

Projects 4 and 5 differed considerably from the previous. Whereas clay, proportion, and hollow-tile construction were continued, a stride toward variation in form was approached, with greater depth of relief being introduced. Both projects seemed to assume much more pleasing composition, with Number 4 indicating a highly-abstracted, ornate direction, and Number 5 surging to a pronounced peak of interest as a result of more natural, flowing directions. The combination of a more pronounced relief with an interesting variation of form instituted an increased amount of light-and-shadow action which is so important to the effectiveness of a sculpture.

Cone 5 firing was again used and the results of Problems 4 and 5 were gratifying. Color range was increased with the introduction of earth browns and tans, contrasted by areas of light cobalt blue and neutral white, all of which were engobe variations. A simple transparent glaze consisting of 60% colemanite and 40% zinc oxide was sprayed over the engobes. Color and form seemed to combine into an integrated unity, with the colemanite glaze providing an enhancing mat transparency.

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FIGURE 4

PROJECT 4: HOLLOW TILE. EARTH COLORS. COLEMANITE GLAZE



FIGURE 5

PROJECT 5: GREATER RELIEF DEPTH. SIMPLIFIED COMPOSITION

Project 6 involved several changes. Clay fortified with vermiculite, a light-weight insulating compound, was explored as a structural possibility and to lessen the weight of the sculpture. Outside dimensions were squared and a more simplified design using greater relief was employed. The project became a true experimental piece, and, although quite inconsistent in color and form, suggested many other possibilities, especially with coloring oxides and glazes.

Glazes used were primarily combinations of colored engobes and colemanite mixtures. Some sections of the piece were coated with a simple colemanite glaze, or "slip-glaze," which consisted of mixing the oxide colorants with the glaze rather than in engobe form.

Although Project 6 evidenced much clay cracking, the "experiment" was productive. Glazes and oxides provided much information. An interesting iron-flecked white was obtained through the "slip-glaze" variation mentioned in the previous paragraph.

Project 7 constituted the final relief of the series. Massive size and simplicity featured the terminal project, with a four by six foot guide structure establishing the general proportions. Introduction of pronounced texture, by building up wet areas of clay and quickly incising and scraping, was added to contrast the large, flowing abstract shapes and to enhance the depth of high relief.

Previous exploration of form seems to have been beneficial as the construction period was brief considering the size of the piece. Care was taken to strengthen each section by carefully inserting support ribs wherever form or stress were indicated. The size of a single section can be obtained by referring to Figure 7, page 13.





FIGURE 6

PROJECT 6: SQUARE DIMENSIONS. DISTINCT VARIATIONS



FIGURE 7

PROJECT 7: TILE SECTION SHOWING RIBBED CONSTRUCTION

In spite of its size, the piece was comprised of just nine sections. Air holes were cut into sections to aid drying, and small holes were drilled into the exterior base perimeter of the work for both drying and installation purposes. The sculpture was dried slowly and evenly to guard against cracking during the critical "greenware," or unfired stage.

Choosing between a simplified or a polychrome color scheme was a difficult process. Since a wide variation of color was obtained from the previous experiments, the color alternative was selected. In decorating, the positive projecting forms received most of the darker hues, while the negative, textural areas were designated as neutral. Accent areas of turquoise, blue-gray and beige were inserted. The colemanite-zinc oxide glaze was sprayed over the engobe areas. The nine-section piece was then loaded into the kiln and fired to Cone 5 in one operation.

Fired results were good. Considering the size of the piece, little cracking was evidenced. Glazed areas were mature with little blistering noticed. The most beneficial experience of this project was the skill acquired in working in such large proportions. With the exception of an unexpected brilliant blue, the terminal experiment was completed as anticipated.

## CHAPTER IV

### HYPOTHETICAL INSTALLATION

Ideally, architectonic sculpture would be selected during the planning and drafting of a building site. Not enough emphasis can be placed on the collaboration between artist and architect before sculpture can be incorporated into a building. However, this particular problem is not pertinent, since installation was preconceived as being hypothetical.

Montana State University's Law Building afforded an excellent hypothetical situation with its entrance area. Preliminary sketches and photographs were considered, using different angles of approach, before this area was considered. A photographic overlay is offered as a solution to possible future installation. (Figure 8, page 16.)

Mechanical installation presents an additional problem and was considered with two alternative solutions, both based upon installation after building completion.

#### Problems of Mechanical Installation

Alternative one consists of removing brick from the projected sculptural area, after which the individual tile could be assembled by starting from the bottom and mortaring in each section until complete.

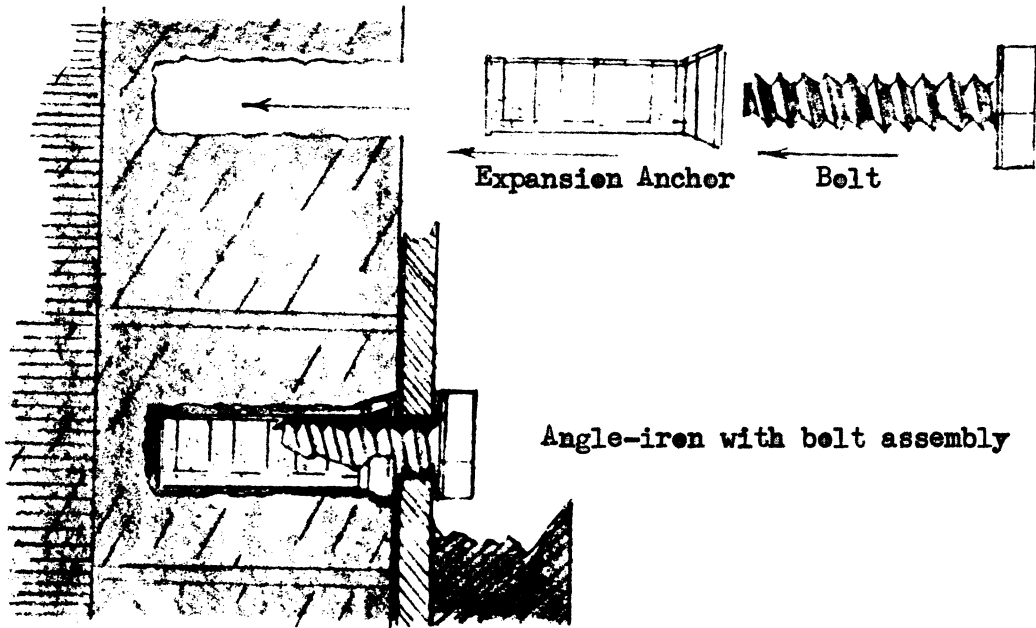
Alternative two involves using a welded angle-iron framework which could be bolted into the brick exterior by using lead expansion anchors. Then the tile could be assembled as mentioned in alternative one. Diagrams illustrating this technique are pictured on page 17 showing the bolt assembly and angle-iron framework.





FIGURE 8

HYPOTHETICAL INSTALLATION. PHOTOGRAPHIC OVERLAY. MONTANA STATE UNIVERSITY LAW BUILDING



A. Cut-away view showing belt and angle-iron assembly

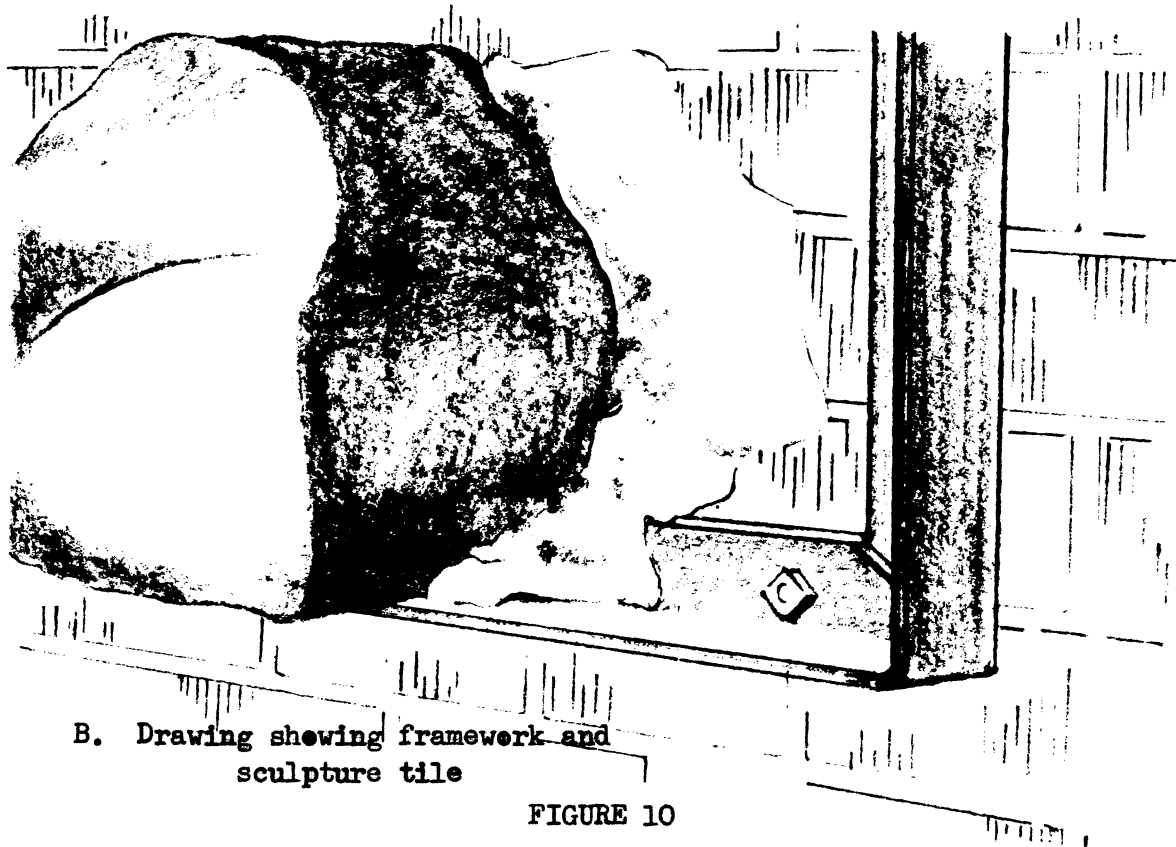


FIGURE 10

HYPOTHETICAL INSTALLATION: ALTERNATIVE TWO

## CHAPTER V

### EVALUATION AND CONCLUSION

Pertinent to all art forms is the incessant quest of experience gained only through inventiveness and experimentation. Any attempt to measure the degree of success or failure of this thesis and the problems encompassed in their total meaning would be impossible.

The many problems themselves proved quite meaningful since they form the basis for further investigation. This factor alone justifies any results which may have been obtained from the many experiments. If the thesis were to be done over or continued from this point, unlimited areas could be explored and many changes from the original directions could be made. For example, the site of installation could be varied to include not only interiors and exteriors of buildings, but also homes, patios and fireplaces. Materials other than clay are readily available. These might include concretes, woods, aggregates, plastics and various metals. One could also utilize combinations of these materials in mosaic as well as sculptured form, or in combinations of both. Re-examination of the thesis projects and the results obtained would suggest that to be more effective, one could have used a subdued color scheme with active-form sculpture of this nature.

The theme of this paper centered around experimentation, with a variety of results being obtained. These experiences proved both rewarding and disappointing, but foremost, they have awakened a desire for further investigation with unlimited possibilities.

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